

REMARKS

The Office Action dated April 14, 2008 has been received and carefully noted. The above amendments to the claims, and the following remarks, are submitted as a full and complete response thereto.

Claims 1, 10 and 11 have been amended to more particularly point out and distinctly claim the subject matter of the invention. No new matter has been added and no new issues are raised which require further consideration or search.

The Office Action objected to claim 1 for including minor claim informalities. Applicants have amended claim 1 in an effort to correct those minor informalities. Withdrawal of the objection is kindly requested.

Claims 1-2 and 5-8 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,556,892 to Kuroki et al. in view of Vision Based Person Tracking with a Mobile Robot to Schlegel et al. The Office Action alleged that Kuroki discloses all of the subject matter of the claims except for measuring a distance to the subject to be followed up. The Office Action then relied on the teachings of Schlegel as allegedly curing those deficiencies of Kuroki. This rejection is respectfully traversed for at least the following reasons.

Claim 1, upon which claim 2-9 are dependent, recites an apparatus for controlling a movable robot comprising a camera, moving means, and a device for outputting a sound. That apparatus includes means for recognizing a subject to be followed up, which recognizes the subject on the basis of an image taken by the camera, and means for

recognizing a distance to from the subject having been recognized by the means for recognizing a subject to be followed up. The apparatus further includes means for controlling movement, which controls said moving means so as to keep the distance from said movable robot to the subject, having been recognized by said means for recognizing a distance to the subject to be followed up at a predetermined distance. The apparatus also includes means for controlling the outputting of a sound, which outputs a sound or a voice related to the distance to the subject. The sound or the voice from the means for controlling the outputting of a sound informs the subject about a situation regarding the distance to the subject, so as to prompt the subject to keep the distance from said movable robot to the subject at the predetermined distance. The prompting operation comprises informing the subject whether it needs to change its movement pace based on at least one of an increase or a decrease in the actual distance, determined based on the predetermined distance, between the movable robot and the subject.

Claim 10 recites a process for controlling a movable robot comprising a camera, moving means, and a device for outputting a sound. The process includes a step for recognizing a subject to be followed up, which recognizes the subject on the basis of an image taken by the camera, and a step for recognizing a distance to the subject having been recognized by the step for recognizing a subject to be followed up. The process further includes a step for controlling movement, which controls said moving means so as to keep the distance to the subject having been recognized by said step for recognizing a distance to the subject at a predetermined distance, and a step for controlling the

outputting of a sound, which outputs a sound or a voice related to the distance to the subject. The sound or the voice from the step for controlling the outputting of a sound informs the subject about a situation regarding the distance to the subject, so as to prompt the subject to keep the distance from said movable robot to the subject at the predetermined distance. The prompting operation comprises informing the subject whether it needs to change its movement pace based on at least one of an increase or a decrease in the actual distance, determined based on the predetermined distance, between the movable robot and the subject.

Claim 11 recites a computer-readable medium encoded with a program for controlling a movable robot comprising a camera, moving means, and a device for outputting a sound. The program controls a computer to serve as means for recognizing a subject to be followed up, which recognizes the subject on the basis of an image taken by the camera, and means for recognizing a distance to the subject having been recognized by the means for recognizing a subject to be followed up. The computer further serves as means for controlling movement, which controls said moving means so as to keep the distance to the subject having been recognized by said means for recognizing a distance to the subject at a predetermined distance. The computer also serves as means for controlling the outputting of a sound, which outputs a sound or a voice related to the distance to the subject. The sound or the voice from the means for controlling the outputting of a sound informs the subject about a situation regarding the distance to the subject, so as to prompt the subject to keep the distance from said movable

robot to the subject at the predetermined distance. The prompting operation comprises informing the subject whether it needs to change its movement pace based on at least one of an increase or a decrease in the actual distance, determined based on the predetermined distance, between the movable robot and the subject.

As will be discussed below, the combination of Kuroki and Schlegel fails to disclose or suggest all of the elements of the claims, and therefore fails to provide the features discussed above. The rejection is respectfully traversed for at least the following reasons.

Kuroki discloses an image recognition unit 117 coupled to an image input device 251, such as, a camera (see column 8, lines 49-60). The image recognition unit 117 is capable of image recognition processing and may recognize gestures or hand movements of a human user. The image recognition unit is described as recognizing images, and the command interpreting unit 119 is described as analyzing gestures or hand movements of the human. Page 3 of the Office Action admits that Kuroki does not teach measuring a distance to the subject to be followed up. Applicants submit that Schlegel fails to cure the deficiencies of Kuroki with respect to the claims.

Schlegel discloses a robot that holds a distance between a target and the robot (see page 425, second paragraph). The robot uses two cameras to obtain images of a person and to maintain the distance between the robot and the person. The person may be moving and the robot would accelerate/decelerate to maintain the distance between the robot and the person/target.

Neither Kuroki nor Schlegel disclose “informing the subject whether it needs to change its movement pace based on at least one of an increase or a decrease in the actual distance, determined based on the predetermined distance, between the movable robot and the subject”, as recited in independent claims 1, 10 and 11. The disclosure of Schlegel is limited to maintaining a distance between the robot and the subject target by determining the actual distance between the robot and the person and using that actual distance as a factor to change the traveling speed of the robot in its pursuit to follow its subject. There is no interaction between the robot and the subject that suggests the robot actually informs the subject to change its movement pace based on an increase or a decrease in an actual distance between the robot and the subject.

Referring to the specification, page 30, lines 12-26 of the specification disclose example voice outputs which are based on increases or decreases in the distance between the robot and the subject. For example, the robot may output a voice command that asks the subject to “please wait” if the distance between the robot and the subject is too large. Other commands may also be output to the subject depending on the current distance between the robot and the subject. Neither Kuroki nor Schlegel disclose these above-noted features of the claims which includes “informing the subject whether it needs to change its movement pace based on at least one of an increase or a decrease in the actual distance, determined based on the predetermined distance, between the movable robot and the subject”, as recited in independent claims 1, 10 and 11.

Therefore, Applicants submit that Kuroki and Schlegel fail to teach all of the subject matter of independent claim 1. By virtue of dependency, Kuroki and Schlegel also fails to teach the subject matter of dependent claims 2 and 5-8. Withdrawal of the rejection of claims 1, 2 and 5-8 is kindly requested.

Claims 3-4 were rejected under 35 U.S.C. §103(a) as being unpatentable over Kuroki in view of Schlegel and further in view of U.S. Patent Publication No. 2004/0230340 to Fukuchi et al. The Office Action alleged that the combination of teachings in Kuroki, Schlegel and Fukuchi disclose all of the subject matter recited in claims 3-4. This rejection is respectfully traversed.

Kuroki and Schlegel are discussed above. Fukuchi discloses a behavior controlling apparatus by which the mobility area of a robot is controlled by using landmarks. A landmark recognition unit recognizes the various landmarks and builds a map based on the geographical positions of the landmarks. The map is used to contain the mobility of the robot and to confine the robot to the area therein.

Claims 3-4 are dependent upon claim 1 and inherit all of the limitations thereof. As discussed above, the combination of Kuroki and Schlegel fails to disclose or suggest all of the elements of claim 1. In addition, Fukuchi fails to cure the deficiencies in Kuroki and Schlegel as Fukuchi also fails to disclose or suggest “informing the subject whether it needs to change its movement pace based on at least one of an increase or a decrease in the actual distance, determined based on the predetermined distance, between the movable robot and the subject”, as recited in independent claims 1, 10 and 11.

Accordingly, the combination of Kuroki, Schlegel and Fukuchi fails to disclose or suggest all of the elements of claims 3-4. Furthermore, claims 3-4 should be allowed for at least its dependence upon claim 1, and for the specific limitations recited therein.

Claim 9 was rejected under 35 U.S.C. §103(a) as being unpatentable over Kuroki in view of Schlegel and further in view of UK Patent Application No. GB 2 258 098 to Na. The Office Action alleged that the combination of teachings in Kuroki, Schlegel and Na disclose all of the subject matter recited in claim 9. This rejection is respectfully traversed.

Kuroki and Schlegel are discussed above. Na discloses a volume control apparatus that operates to control the volume level of output sound based on background noise. A suitable volume level is selected based on the level of background noise detected.

Claim 9 is dependent upon claim 1 and inherits all of the limitations thereof. As discussed above, the combination of Kuroki and Schlegel fails to disclose or suggest all of the elements of claim 1. In addition, Na fails to cure the deficiencies in Kuroki and Schlegel as Na also fails to disclose or suggest “informing the subject whether it needs to change its movement pace based on at least one of an increase or a decrease in the actual distance, determined based on the predetermined distance, between the movable robot and the subject”, as recited in independent claims 1, 10 and 11. Accordingly, the combination of Kuroki, Schlegel and Na fails to disclose or suggest all of the elements of

claim 9. Furthermore, claim 9 should be allowed for at least its dependence upon claim 1, and for the specific limitations recited therein.

Claims 10-11 were rejected under 35 U.S.C. §103(a) as being unpatentable over Kuroki in view of Schlegel and further in view of JP Patent No. JP-2005202078-A to Shimomura. The Office Action alleged that the combination of teachings in Kuroki, Schlegel and Shimomura disclose all of the subject matter recited in claims 10-11. This rejection is respectfully traversed.

As was discussed in detail above, neither Kuroki nor Schlegel teach or suggest “informing the subject whether it needs to change its movement pace based on at least one of an increase or a decrease in the actual distance, determined based on the predetermined distance, between the movable robot and the subject”, as recited in independent claims 1, 10 and 11.

The additional cited reference Shimomura also fails to teach the above noted features of claims 1 and 10-11.

Shimomura discloses a robot that outputs a sound or voice related to the distance to the subject. A sound synthesis unit 48 outputs a sound depending on the distance to the subject by changing speed, volume or intonation of the speech. However, nowhere does Shimomura teach or suggest “informing the subject whether it needs to change its movement pace based on at least one of an increase or a decrease in the actual distance, determined based on the predetermined distance, between the movable robot and the subject”, as recited in independent claims 1, 10 and 11.

Applicants submit that Kuroki, Schlegel and Shimomura, taken individually or in combination, fail to teach all of the subject matter recited in independent claims 1 and 10-11. By virtue of dependency claims 2-9 are also allowable over Kuroki, Schlegel and Shimomura. Withdrawal of the rejection of claims 10-11 is respectfully requested.

For at least the reasons discussed above, Applicants respectfully submit that the cited references fail to disclose or suggest all of the elements of the claimed invention. These distinctions are more than sufficient to render the claimed invention unanticipated and unobvious. It is therefore respectfully requested that all of claims 1-11 be allowed, and this application passed to issue.

If for any reason the Examiner determines that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact, by telephone, the applicants' undersigned representative at the indicated telephone number to arrange for an interview to expedite the disposition of this application.

In the event this paper is not being timely filed, the applicants respectfully petition for an appropriate extension of time. Any fees for such an extension together with any additional fees may be charged to Counsel's Deposit Account 50-2222.

Respectfully submitted,

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